

# Black Bass Annual Review



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## ANGLER CONCERNS 2013 BASS ROUNDTABLE

There were 19 anglers and biologists at the roundtable held in February 2013.

**Licensing Concerns** were briefly discussed. There will not be a reciprocal license with Delaware because the mainstem of the Nanticoke River is not shared by Delaware and Maryland.

As noted in the roundtable of 2012, anglers participating in the 2013 roundtable remained unhappy with the **fee differences** between non-residents of neighboring states. Neighboring states currently charge non-residents proportionately more than Maryland charges non-residents. Several suggestions were discussed, including a Black Bass Stamp for nonresidents. Anglers will need to raise the issue with the General Assembly and its legislatures in 2014 if any change in the Chesapeake Bay sportfishing license fee for non-residents is to occur.

It was discussed that the **PRFC license** was much cheaper than either Maryland or Virginia fishing licenses. The MD DNR gratefully thanks Roger Trageser (President, Maryland Bass Nation or MBN) for his selfless work and perseverance in working with PRFC in 2013 when PRFC proposed to charge the same amounts for recreational fishing licenses that MD DNR currently charges.

It was discussed whether **moving Largemouth Bass among rivers** was a problem. While a transplanted Largemouth Bass may never return, the number of anglers who move fish among rivers was decided to be extremely low.

It was suggested for MD DNR to compensate for the removal of Largemouth Bass from a river by **moving adults from weigh-in areas to other rivers**. In 1990, Leon Fewlass (MD DNR tidal bass biologist) reported that moving fish around with trucks led to poor public relations and strong negative feedback. Moving fish around with a boat was not effective because of the limited capacity aboard boats and long transit times involved in transporting Largemouth Bass.



## 2013 WORK IN RESPONSE TO ANGLER CONCERNS

### Black Bass Blotches

What causes those black blotches on Largemouth Bass? Pollution? Genetics? Sun? Well, no one really knows. It is not linked to specific pollution events or to poor survival. It's a condition called melanosis and it's pretty common across the United States.

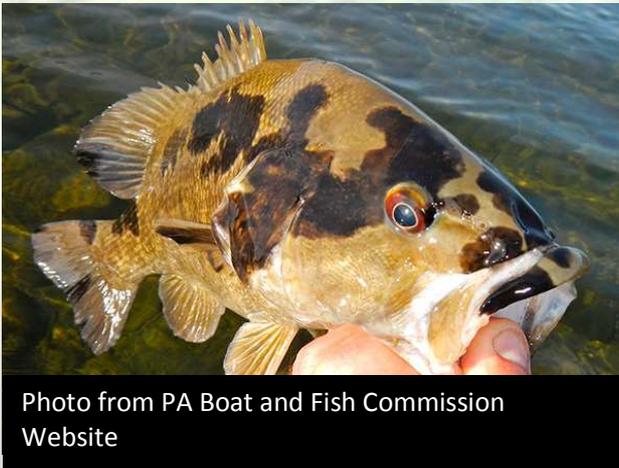


Photo from PA Boat and Fish Commission Website

Earlier this year, the Chesapeake Bay Foundation issued a report that highlighted problems with the Smallmouth Bass fishery in Susquehanna River. The report stated that, "Over the next several years, excessive mortality devastated several consecutive year classes of Smallmouth Bass, followed by reports of blotchy skin (melanosis), open sores, and wart-like growths in adult fish." As a result of the report, MD DNR Fisheries received several questions on the subject of blotchiness. After exhaustively contacting experts on the subject, including biologists with Pennsylvania Fish and Boat Commission, we learned that blotchiness does not harm bass and that blotchy bass are generally healthy and in good condition. While its origins remain unknown, blotchiness is common and does not harm the fish.

### Wicomico River Pollution

Following rain events in May 2013, the MD DNR Inland Fisheries Service received a photo of pollution in the inner harbor of Salisbury. This photo was the most recent in several electronic correspondences over the past 2 years.



Photo supplied by Captain Bruce Wooten

Anglers, many of whom are Largemouth Bass anglers, are unhappy with the pollution conditions of the inner harbor at Salisbury. The major sources for pollution in the inner harbor of Salisbury stem from feces from geese and wastewater spills. To help with nutrient pollution from geese, "living shorelines" were installed in the City Park of Salisbury with the guidance of Chesapeake Bay Foundation. Wastewater spills may occur during storms when the Wastewater Treatment Plant is overwhelmed with storm water. Many systems designed to manage both wastewater and storm water currently have administrative or judicial orders to separate those systems<sup>1</sup>. In 2015, the Wastewater Treatment Plant will be upgraded to significantly reduce both nitrogen and phosphorus pollution. Despite improvement to the Wastewater Treatment Plant, storm water management remains a major issue for the City of Salisbury. There is a need for funds to pay for skimmers, outfall nets, and widespread recycling<sup>2</sup>. These funds may come from a proposed storm water tax from the State.

<sup>1</sup> E-mail correspondence from Virginia Kearney (Maryland Department of Environment) on December 4, 2012.

<sup>2</sup> E-mail correspondence from Mayor James Ireton (City of Salisbury) on April 25, 2011.

## Keeping Bass Alive in Live Wells

High survivorship at the weigh-in can be partially credited to anglers who have large and functioning live wells. Frequent recirculation with periodic water exchange is necessary to provide good conditions within the live well. Frequent water exchanges may help provide oxygen to the live well. In addition, chilling the live well with ice during summer is important.

During summer, water exchanges should be infrequent (every 2 – 3 hrs) to help maintain chilled temperatures. Frequent or constant recirculation is also necessary. Understandably, recirculation lowers battery power. Anglers should ensure batteries are fully charged prior to fishing or carry an extra battery, a pump or bucket as precautions to live well failure.



Biologist Branson Williams Measuring Oxygen in a Live Well that Contains Largemouth Bass

### *If the Live Well Fails*

1. Bucket in freshwater every 10 minutes, or
2. Use a spare pump, or
3. Transfer bass to a working live well, or
4. Release the bass.

### *Spring and Fall*

1. Chill live wells with a bag of ice to 5 – 7° F below stream or lake water temperature
2. Use recirculation (2 - 9 min interval)
3. Use water exchanges (every ½ - 1 hr)
4. Use a minimum 750 gal/hr pump

## Aerating Water at Smallwood

A popular release site for Largemouth Bass following bass tournaments is Smallwood State Park (Mattawoman Creek). Anglers expressed concerns regarding poor oxygen or hypoxic conditions at waters near the docks of Smallwood State Park. Low oxygen levels can cause lower survivorship of bass, particularly those exercised during a tournament.

The concerns led to the establishment of a submerged aerator system, which was suggested by Scott Sewell (Conservation Director, Maryland Bass Nation) and installed with the assistance of Roger Trageser (President, Maryland Bass Nation). The effectiveness of that aerator was tested in 2013.

Low oxygen is patchy around the docks of Smallwood State park and more common between 4 am and 10 am. During this period, the aerator at the release site had a positive effect and increased oxygen levels by about 20% after about 16 hours of operation. The positive effect is very limited to the area near the aerator, which is where Largemouth Bass are typically released.

The aerator may not need to be used every year. Low oxygen conditions were more common in 2010 than 2012 or 2013 at Smallwood State Park. Poor oxygen conditions were also more intense in 2010. The intense and frequent bouts of low oxygen may be caused by thick grasses around the dock. Thick grasses may disrupt flow of water and reduce flushing of water around the docks.

### *Summer*

1. Chill live wells with a bag of ice to 5 – 7° F below stream or lake water temperature
2. Use frequent recirculation (2 min interval)
3. Use infrequent water exchanges (every 3 hrs)
4. Use a minimum 750 gal/hr pump

## Start Your Student Bass Club

The following was circulated to Maryland's secondary school guidance counselors in 2013.

The purpose of bass fishing clubs is to connect young anglers with the outdoors. Because fisheries for Largemouth Bass are supported by national conservation societies young anglers also learn principles of conservation and ecology. Experiential learning provided by bass fishing clubs improves a young anglers' awareness of the environment and promotes a healthy competitive spirit. Nationally, bass fishing is a multi-million dollar business.

Bass fishing clubs integrate science and sports, which generalizes their appeal to high school students. The commercial success of bass fishing helps to inspire and educate young anglers in techniques of fishing.



To help in the formation of bass clubs, popular bass fishing organizations have provided resources that are available on-line. These organizations routinely work with Maryland Department of Natural Resources toward a share vision of connecting young anglers to bass fisheries. The high school bass clubs require a minimum grade point average, low membership dues (\$20-\$25, annually) and some require community service. Additionally, club members must complete a US Coast Guard approved

boater's safety course. The benefits of forming a club may include liability insurance coverage during fishing competitions, educational materials designed to reinforce science curriculum, and access to sportfishing competitions.

Not only is there an opportunity for the students to reinforce science and math skills, but they may win money, trophies, and scholarships. Because many colleges also have bass clubs, it may be easier for students to identify quality colleges and obtain letters of recommendation for Admissions.

For more information on bass clubs and scholarships, please visit:

<http://www.mdbass.com/youth/index>

for Maryland Bass Nation (MBN) or

[www.highschoolfishing.org](http://www.highschoolfishing.org)

for The Bass Federation (TBF).

Maryland DNR Youth Fishing Club:

<http://www.dnr.state.md.us/fisheries/keepfishing/>

An online video describing bass fishing clubs is accessible at:

[http://www.youtube.com/watch?v=YeAAW\\_frzel](http://www.youtube.com/watch?v=YeAAW_frzel)

For more information on starting a bass club in a high school, please contact Jim Kline (MBN) at 301-791-3724 and Mark Gintert (TBF) at 580-716-4251.



The Bass Federation's Quad State High School Fishing Championship, upper Chesapeake Bay

## Health of Largemouth Bass

During the Fall, Largemouth Bass was surveyed from several Chesapeake Bay rivers. Disease was most often encountered on tidewater of Patuxent River where 8% of the collected individuals had signs of infection. Other tidewater areas had a lower frequency of disease among individuals: Choptank River (7.7%), Marshyhope Creek (1%), Pocomoke River (7.1%), Potomac River (1%), upper Chesapeake Bay (< 1%), Gunpowder River (0%), and Wicomico River (0%). Infections were minor and caused by bacteria or fungus.



Largemouth Bass with bacterial infection, Northeast River

## Stocking Strategy

In 2013, 214,340 juveniles were raised by MD DNR hatcheries and released to tidal freshwater systems of Chesapeake Bay. The adults that spawned the juveniles were released back to their home rivers in June. Of the juveniles raised, 213,667 were released to Choptank River. A small number were raised by Wheelabrator Technologies Inc., and released to Gunpowder River.

Wheelabrator Technologies, Inc.



In 2013 in Choptank River, there were 2 recaptures of hatchery raised fish that were likely released in 2011. These were 14.5 inches long. The growth rate was calculated as 3 inches/yr, which is slightly greater than that (2.8

## Stocking Strategy (cont.)

inches/yr) for similarly aged Largemouth Bass in tidal rivers.

Despite over 10,000 juveniles (2 – 6 inches) being released to Choptank River, none of the 7 juveniles collected during the survey of Choptank River had been raised in the hatchery.



Stocking Largemouth Bass Juveniles, Gunpowder River

During the Patuxent River survey, 3 captured Largemouth Bass were hatchery raised fish. These fish were stocked at a size of approximately 2 inches. The sizes of the fish were 8, 14.6, and 15.5 inches. The 8 inch fish had a growth rate of 2 inches/yr, which is pretty low. The other two fish were likely stocked in 2009 and had growth rates of 2.8 inches/yr, which is typical of similarly aged Largemouth Bass in tidal rivers.

To see how fish are stocked, check out this video created by *Outdoors Delmarva*:

<http://goo.gl/II0I3>

Can you tell the difference between a young Largemouth Bass and Smallmouth Bass?



## Spread and Control of Northern Snakehead



Northern Snakehead has successfully established itself in the Potomac River, but has since expanded to Patuxent River. Based on suitable habitat for Northern Snakehead and the population

estimate, we calculated that there were about 5 Northern Snakehead per acre of suitable habitat. Reports for Little Hunting Creek and Anacostia River ranged from 4 to 9 Northern Snakehead per acre.

Northern Snakehead has also been collected in relatively small numbers from Rappahannock River, Rohde River, Wicomico River, Blackwater River, and Nanticoke River. Of these, an established population (i.e., one with reproduction) exists within Wicomico River (near Salisbury) and the upper Nanticoke River. It is presumed that Northern Snakehead can move among Wicomico River, Blackwater River, and Nanticoke River by moving about Fishing Bay (a confluence of the mouths of these rivers). Several Northern Snakehead adults were caught at the footbridge of upper Blackwater River in summer 2013. A young Northern Snakehead was caught in a small trap in a ditched area that connects upper Blackwater River to Little Choptank River. Northern Snakehead may use this pathway to colonize and possibly establish itself in the Choptank River. To date, no individuals have been verified as collected from tidewater habitats of Choptank River.

The catch and distribution of Northern Snakehead in the Tidal Bass Survey was lower in

## Spread and Control of Northern Snakehead (cont.)

2013 than 2012 in Potomac River, but is similar to levels measured in 2010. The 2013 observations represent the first decrease in catch and distribution since the species was first discovered in Potomac River. It is not clear whether the cause of the decline is increased angling effort or other factors.

Angling effort for the past 2 – 3 years has increased considerably and has been supported by initiatives by both MD DNR Fisheries Service and the U.S. Fish and Wildlife Service. Beginning in 2014, Maryland will be instituting a state record program for anglers helping to control the spread of invasive species such as Northern Snakehead. It will also institute an invasive species category to award anglers as part of the Maryland Fishing Challenge.

For the first time in the history of the Tidal Bass Survey, two Northern Snakehead adults were captured during a survey of Wicomico River. Though the species was captured by anglers since 2011, it had not been collected by electrofishing survey gear until 2013. Adults were also collected from Patuxent River, similar to last year. It appears that it takes 2 years between angler reporting and collection by Maryland DNR's Tidal Bass Surveys.

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## BASS, THIS AND THAT

### Research Presented at the Black Bass Symposium (American Fisheries Society)

The following is a summary of selected presentations made earlier this year on black bass biology. The full list of podcasts can be found at:

<http://sdafs.org/spring-meeting-2013/podcasts-nashville-tn/>

## Natural Reproduction

Geoffery Smith (PA Boat and Fish Commission) reported that about 70% of young-of-year Smallmouth Bass had disease in the Susquehanna River. The major diseases noted were secondary bacterial infections, such as *Columnaris*. Disease could be linked to habitat quality, PCBs, endocrine disruptors (90 – 100% intersex prevalence), or heavy infestations by myxozoan parasites – or a combination of these.

There is a lot of evidence that angling during the spawning season leads to nest failure and abandonment. Males are more likely to abandon small broods, older offspring, and nests where there is a high abundance of predators. Males likely perceive their environment as a “good neighborhood” or a “rough neighborhood.” Once the male is removed from the nest or disturbed, it abandons the nest if taken from a “rough neighborhood.” The size of the bass does not appear to influence abandonment.

J.A. Stein reports that larger males do pair with larger females, and they typically produce a larger brood. However, having a lot of adults reproducing doesn't mean that there will be really great reproduction. No single life stage appears to be critical for determining abundance of subadults; instead, environmental factors tied to summer or winter survival and angling pressure may be more important.

When Randy Jackson investigated reproduction of Largemouth Bass and Smallmouth Bass in New York, he found that eliminating angling pressure during spring did not affect the population. Instead, changing environments (such as clearer water) and water temperatures likely explained changes in survivorship of young fish. C.R. Peacock showed that periods of greater stream discharge were associated with poor growth of young-of-year fish.

## Is Stocking Successful?

The influence of stocking to support a population is a major area of research for black bass. Mike Porta reported that stocking Shoal Bass (25 mm, 30,000 – 70,000) resulted in those fish living to age 3. The contribution disappeared quickly after age 3. Only stocked fish were caught during years of stocking. It was speculated that the stocked fish were larger than the wild fish, leading to the stocked fish eating wild fish. Additional work presented by S. Lochmann, indicated that stocking juvenile bass had no effect on Age 1 fish. When habitat is good, populations will grow naturally and need little input from hatcheries. In poor habitats, stocking must be conducted every year for hatchery fish to remain in the population.

## Stocky, Short Coastal Bass

Dennis DeVries continued his work with Largemouth Bass from the Mobile River. Largemouth Bass do not move in response to salinity. Instead, their growth patterns reflect the salinity exposure. Upstream fish (ages 0 – 1) in freshwater grow slower relative to their saltwater counterparts. The forage for younger fish (e.g., macroinvertebrates) is plentiful in saltwater areas (10 ppt). However, as these younger fish grow (ages 2-3), they eat blue crabs and other crustaceans that are not as energetically valuable as fishes and coastal adults grow (by length) less than their freshwater counterparts. In brackish water, Largemouth Bass invest more energy into fat and less into growth.

All comments on this report can be submitted to *Joe Love* at [jlove@dnr.state.md.us](mailto:jlove@dnr.state.md.us). A comprehensive report can be requested. Work was paid by fishing license dollars and funds from Sport Fish Restoration Act.

## CURRENT STATUS OF POPULATIONS

### Potomac River

The MD DNR is investigating the negative trends in catches observed for the Potomac River population. Tournament anglers reported good catches during late spring and early summer, but not in fall. The decline in total catch in MD DNR surveys, which occur during fall, may be related to the lower catch of subadults. There has been a steady and progressive decline in relative abundance of juveniles since 2010, and in distribution since 2006. The acreage of submerged aquatic vegetation (SAV) in 2012 was less than that for 2010; average density of SAV has increased. During this time, there has also been an increase in the abundance of predators as the population of Northern Snakehead has expanded in size and distribution. It is likely that as grass distribution improves, so will reproduction, the number of subadults, and fishing.

### Patuxent River

The Patuxent River population has not changed much over the past decade and a half. It has benefitted from good habitat, relatively few habitat disturbances, and a fairly consistent stocking program. This population represents a small, but reasonably stable population for Largemouth Bass in the Chesapeake Bay watershed. It is currently being used to assess the contribution of hatchery stocking by releasing marked fish.



Biologists Adam Eshleman and Todd Heerd working on Gunpowder River during Tidal Bass Survey

### Gunpowder River

There were 7 Largemouth Bass collected from Gunpowder River. They ranged in total length from 8 inches to 19.2 inches. No juveniles were collected on Gunpowder River. Survey efforts will be improved for spring 2014 to include more habitats that can be efficiently sampled using boat electrofishing.



Biologist Ross Williams and Shaun Miller working on Potomac River during Tidal Bass Survey

### Choptank River

There were 36 Largemouth Bass collected from Choptank River. They ranged in total length from 2 inches to 21.2 inches. Catch has been lower for 2006-2013 surveys than 1999-2002 surveys. The catch level reported in 2013 is only slightly lower than that reported in 1994 for Choptank River. Largemouth Bass grew well and were in good body condition, indicating suitable conditions and resources. Natural reproduction seems to be limited by available habitat. Despite stocking over 10,000 marked juveniles (> 50 mm) in 2013, there were no recovered marked juveniles. Since 2009, the Choptank River population has been the subject of intensive stocking. However, to date, hatchery fish have had little contribution. The natural carrying capacity of Choptank River may prohibit a naturally large population.

## Marshyhope Creek

The population in Marshyhope Creek is a good population with natural and effective reproduction. While not as frequent or large as those on the Upper Bay or Potomac River, tournaments originating within the Nanticoke watershed are popular. Many of the tournaments originate in Delaware in Broad Creek. These tournaments do not use release boats. There had been concern that tournaments from Seaford would deplete fish from Marshyhope Creek. However, this does not appear to be the case; in part, this is because there are also tournaments held on Marshyhope Creek.



## Upper Chesapeake Bay

The catch estimates for 2013 were lower than expected, possibly because fewer juveniles were collected. Reproduction in the upper Chesapeake Bay was poor in 2012 and 2013. This may be related to poor grass growth. Very few Largemouth Bass exhibited signs of disease, though hooking injuries were not uncommon for fish collected in Northeast River. Additional testing of LMBV and monitoring of survivorship is planned for 2014 because of the increased popularity toward the upper Bay fishery by competitive sport fish anglers.

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## Wicomico River

The population from Wicomico River may suffer from harvest or removal of older fish; however, several older Largemouth Bass were collected during this survey. The suitable habitat for Largemouth Bass tends to be restricted to Salisbury on Wicomico River. The low catch level is also related to the inability to collect young fish (age 0 – age 2). Because resources appear reasonable to support growth and robust bodies, the paucity of younger age classes may not be related to insufficient prey. Stocking conducted in 2012 may help bolster young age classes in this population, thereby contributing to a more sustainable population.

## Pocomoke River

As expressed by anglers and biologists in the past, the Pocomoke River population tends to have few older Largemouth Bass. Fewer Largemouth Bass were collected in 2013 than earlier years for unknown reasons. Very few juveniles were also collected in the survey. The poor collection may be an artifact of sampling bias or indicate poor reproduction and juvenile survivorship in 2013. Body growth rates were slow, but fish were normally fat. The rate of body growth may be slow because of naturally limited oxygen in the Pocomoke River. Oxygen is used in cellular metabolism and growth.

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## TOURNAMENT FISHING

Anglers reported catching 47,026 lbs and 20,521 fish from tidal rivers of Chesapeake Bay. Data were collected for 140 tournaments in Potomac River and upper Chesapeake Bay. There were 5,483 anglers who fished approximately 8 hours a day from March – November on Potomac River and the upper Chesapeake Bay. Catch rates were highest from April and through June. A small number of tournaments were held in

## Tournament Fishing *(cont.)*

other tidal waters of the state (Gunpowder River, Choptank River, Nanticoke River, Pocomoke River, Wicomico River).

This is the first year that MD DNR has recorded more tournaments in the upper Bay than the Potomac River. The number of tournament activity reports from the Potomac River was 56, which is lower than the 84 from the upper Chesapeake Bay. The number of tournaments in the upper Chesapeake Bay was also higher than previous years. The mandatory permitting system may now be accounting for upper Bay tournaments that were not originally counted; recent comments by anglers of an extraordinary upper Bay fishery may have also navigated interest from the Potomac River to upper Bay.

For a list of upcoming tournaments and their locations, please go to:

<http://dnr.maryland.gov/fisheries/bass/ta.asp>

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## RECREATIONAL FISHING

A volunteer angler survey (VAS) was developed for inland tidal and non-tidal fisheries. It is posted on-line at:

<http://dnr.maryland.gov/fisheries/survey/index.asp>

There were 37% of 301 surveys reported targeting Largemouth Bass. The survey was incentivized with a random drawing of entries from Bass Pro Shops. The average number of anglers per angler survey was 1.8. The average number of hours per trip was 4.4, with a total of 1355 hours reported.

There were 3528 fishes caught and reported. Of those, 638 were Largemouth Bass (or 18% of all caught fish).

## Recreational Fishing *(cont.)*

Successful Largemouth Bass anglers spent an average of 5.1 hours of fishing; those who didn't catch a bass, spent 3.3 hours fishing. Very few anglers reported harvesting Largemouth Bass (13 of 668, or 1.9%). The average money spent by anglers targeting Largemouth Bass (\$35/day) was slightly more than that spent by anglers who did not target Largemouth Bass (\$31/day).

The majority of reports (40.4%) were submitted from anglers who fished impoundments. The Potomac River was the second most reported location (24.6%); the upper Chesapeake Bay was third (4.4%). Similar to that observed with tournament angler reports, the Potomac River and upper Chesapeake Bay appear to be the two most highly targeted tidewater areas by anglers. Other systems reported as targeted by anglers included: Gunpowder/Middle River (1.8%) and Pocomoke River (0.9%).

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## ROUNDTABLE AGENDA

The Black Bass Roundtable will be held on February 10, 1 pm – 4 pm in C-4 of the Tawes Building in Annapolis (MD). The **agenda** is:

- I. Potomac River Fishing
  - a. Angler Opinions
  - b. MD DNR Observations
- II. Wicomico and Choptank Fishing
  - a. MD DNR Survey Trends
  - b. Reasonable expectations and stocking strategy
- III. Bass Tournaments and Release Boats
  - a. Lessening MD DNR involvement with release boats?
  - b. Live well studies and getting information out
- IV. Creel Survey
  - a. Angler's Log contest for snakehead, state record and award size for snakehead
  - b. Incentives and expectations of Volunteer Angler Survey